

Connecting via Winsock to STN

Welcome to STN International! Enter x:X

LOGINID:ssptajly1793

PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * * * * * * * * * Welcome to STN International * * * * * * * * * * * *

| | | | |
|------|----|--------|---|
| NEWS | 1 | | Web Page for STN Seminar Schedule - N. America |
| NEWS | 2 | OCT 04 | Precision of EMBASE searching enhanced with new chemical name field |
| NEWS | 3 | OCT 06 | Increase your retrieval consistency with new formats or for Taiwanese application numbers in CA/CAplus. |
| NEWS | 4 | OCT 21 | CA/CAplus kind code changes for Chinese patents increase consistency, save time |
| NEWS | 5 | OCT 22 | New version of STN Viewer preserves custom highlighting of terms when patent documents are saved in .rtf format |
| NEWS | 6 | OCT 28 | INPADOCDB/INPAFAMDB: Enhancements to the US national patent classification. |
| NEWS | 7 | NOV 03 | New format for Korean patent application numbers in CA/CAplus increases consistency, saves time. |
| NEWS | 8 | NOV 04 | Selected STN databases scheduled for removal on December 31, 2010 |
| NEWS | 9 | NOV 18 | PROUSDDR and SYNTHLINE Scheduled for Removal December 31, 2010 by Request of Prous Science |
| NEWS | 10 | NOV 22 | Higher System Limits Increase the Power of STN Substance-Based Searching |
| NEWS | 11 | NOV 24 | Search an additional 46,850 records with MEDLINE backfile extension to 1946 |
| NEWS | 12 | DEC 14 | New PNK Field Allows More Precise Crossover among STN Patent Databases |
| NEWS | 13 | DEC 18 | ReaxysFile available on STN |
| NEWS | 14 | DEC 21 | CAS Learning Solutions -- a new online training experience |
| NEWS | 15 | DEC 22 | Value-Added Indexing Improves Access to World Traditional Medicine Patents in CAplus |
| NEWS | 16 | JAN 24 | The new and enhanced DPCI file on STN has been released |
| NEWS | 17 | JAN 26 | Improved Timeliness of CAS Indexing Adds Value to USPATFULL and USPAT2 Chemistry Patents |
| NEWS | 18 | JAN 26 | Updated MeSH vocabulary, new structured abstracts, and other enhancements improve searching in STN reload of MEDLINE |
| NEWS | 19 | JAN 28 | CABA will be updated weekly |
| NEWS | 20 | FEB 23 | PCTFULL file on STN completely reloaded |
| NEWS | 21 | FEB 23 | STN AnaVist Test Projects Now Available for Qualified Customers |
| NEWS | 22 | FEB 25 | LPCI will be replaced by LDPCI |
| NEWS | 23 | MAR 07 | Pricing for SELECTing Patent, Application, and Priority Numbers in the USPAT and IFI Database Families is Now Consistent with Similar Patent Databases on STN |

NEWS EXPRESS 17 DECEMBER 2010 CURRENT WINDOWS VERSION IS V8.4.2 .1,
AND CURRENT DISCOVER FILE IS DATED 24 JANUARY 2011.

NEWS HOURS STN Operating Hours Plus Help Desk Availability
NEWS LOGIN Welcome Banner and News Items

Enter NEWS followed by the item number or name to see news on that specific topic.

All use of STN is subject to the provisions of the STN customer agreement. This agreement limits use to scientific research. Use for software development or design, implementation of commercial gateways, or use of CAS and STN data in the building of commercial products is prohibited and may result in loss of user privileges and other penalties.

FILE 'HOME' ENTERED AT 13:08:38 ON 28 MAR 2011

\Rightarrow

Uploading

THIS COMMAND NOT AVAILABLE IN THE CURRENT FILE

Do you want to switch to the Registry File?

Choice (Y/n) :

Switching to the Registry File...

Some commands only work in certain files. For example, the EXPAND command can only be used to look at the index in a file which has an index. Enter "HELP COMMANDS" at an arrow prompt (=>) for a list of commands which can be used in this file.

=> FILE REGISTRY

| COST IN U.S. DOLLARS | SINCE FILE
ENTRY | TOTAL
SESSION |
|----------------------|---------------------|------------------|
| FULL ESTIMATED COST | 0.46 | 0.46 |

FILE 'REGISTRY' ENTERED AT 13:09:50 ON 28 MAR 2011
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2011 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 27 MAR 2011 HIGHEST RN 1270808-54-2
DICTIONARY FILE UPDATES: 27 MAR 2011 HIGHEST RN 1270808-54-2

CAS Information Use Policies apply and are available at:

<http://www.cas.org/legal/infopolicy.html>

TSCA INFORMATION NOW CURRENT THROUGH January 14, 2011.

Please note that search-term pricing does apply when conducting SmartSELECT searches.

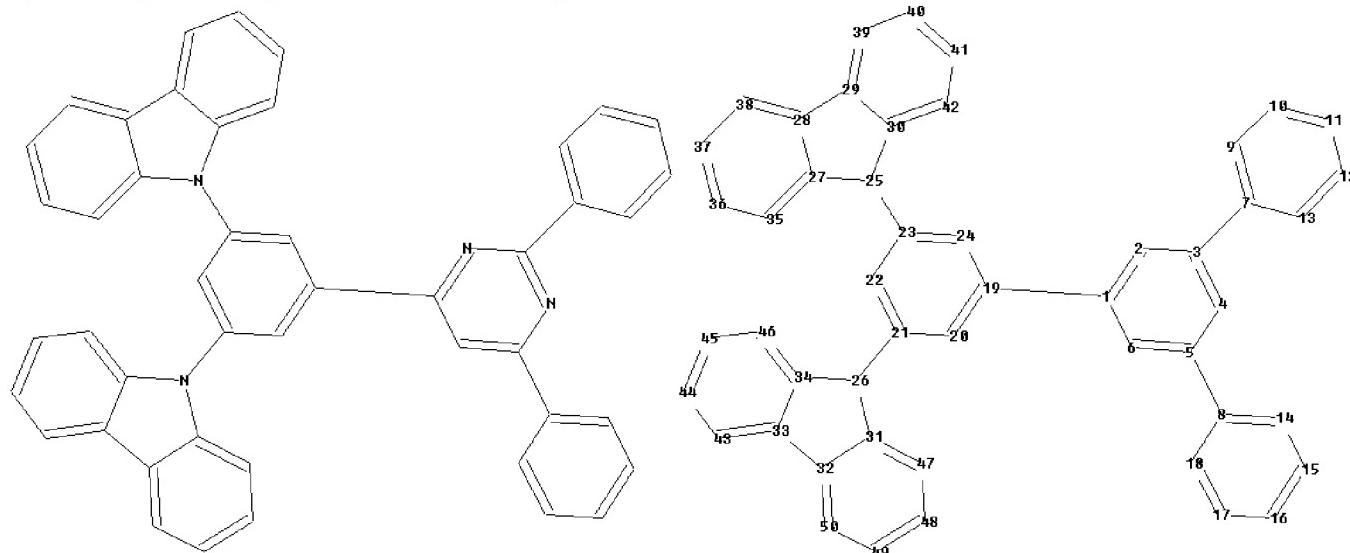
REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information

on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

=>

Uploading C:\Program Files\STNEXP\Queries\10588773\1.str



ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44
45 46 47 48
49 50

chain bonds :

1-19 3-7 5-8 21-26 23-25

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-9 7-13 8-14 8-18 9-10 10-11 11-12 12-13 14-
15
15-16 16-17 17-18 19-20 19-24 20-21 21-22 22-23 23-24 25-27 25-30 26-31
26-34 27-28
27-35 28-29 28-38 29-30 29-39 30-42 31-32 31-47 32-33 32-50 33-34 33-43
34-46 35-36
36-37 37-38 39-40 40-41 41-42 43-44 44-45 45-46 47-48 48-49 49-50

exact/norm bonds :

21-26 23-25 25-27 25-30 26-31 26-34 28-29 32-33

exact bonds :

1-19 3-7 5-8

normalized bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-9 7-13 8-14 8-18 9-10 10-11 11-12 12-13 14-
15
15-16 16-17 17-18 19-20 19-24 20-21 21-22 22-23 23-24 27-28 27-35 28-38
29-30 29-39
30-42 31-32 31-47 32-50 33-34 33-43 34-46 35-36 36-37 37-38 39-40 40-41
41-42 43-44
44-45 45-46 47-48 48-49 49-50

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom
20:Atom 21:Atom

22:Atom 23:Atom 24:Atom 25:Atom 26:Atom 27:Atom 28:Atom 29:Atom 30:Atom
31:Atom 32:Atom
33:Atom 34:Atom 35:Atom 36:Atom 37:Atom 38:Atom 39:Atom 40:Atom 41:Atom
42:Atom 43:Atom
44:Atom 45:Atom 46:Atom 47:Atom 48:Atom 49:Atom 50:Atom

L1 STRUCTURE UPLOADED

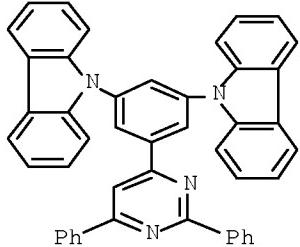
=> s 11 sss full
FULL SEARCH INITIATED 13:10:06 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 160 TO ITERATE

100.0% PROCESSED 160 ITERATIONS 18 ANSWERS
SEARCH TIME: 00.00.01

L2 18 SEA SSS FUL L1

=> d 12 18

L2 ANSWER 18 OF 18 REGISTRY COPYRIGHT 2011 ACS on STN
RN 607740-09-0 REGISTRY
ED Entered STN: 22 Oct 2003
CN 9H-Carbazole, 9,9'-[5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA
INDEX NAME)
MF C46 H30 N4
SR CA
LC STN Files: CA, CAPLUS, TOXCENTER, USPAT2, USPATFULL



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

21 REFERENCES IN FILE CA (1907 TO DATE)
21 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> FIL REGISTRY

| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|----------------------|------------------|---------------|
| FULL ESTIMATED COST | 199.01 | 199.47 |

FILE 'REGISTRY' ENTERED AT 13:10:20 ON 28 MAR 2011

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2011 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 27 MAR 2011 HIGHEST RN 1270808-54-2
DICTIONARY FILE UPDATES: 27 MAR 2011 HIGHEST RN 1270808-54-2

CAS Information Use Policies apply and are available at:

<http://www.cas.org/legal/infopolicy.html>

TSCA INFORMATION NOW CURRENT THROUGH January 14, 2011.

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document. For information
on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

=> SET TERMSET E#

SET COMMAND COMPLETED

=> DEL SEL Y

=> SEL L2 18 RN

E1 THROUGH E1 ASSIGNED

=> S E1/RN

L3 1 607740-09-0/RN

=> SET TERMSET LOGIN

SET COMMAND COMPLETED

=> FIL CAPLUS

| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|----------------------|------------------|---------------|
| FULL ESTIMATED COST | 0.61 | 200.08 |

FILE 'CAPLUS' ENTERED AT 13:10:25 ON 28 MAR 2011
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2011 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is
held by the publishers listed in the PUBLISHER (PB) field (available
for records published or updated in Chemical Abstracts after December

26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 28 Mar 2011 VOL 154 ISS 14

FILE LAST UPDATED: 27 Mar 2011 (20110327/ED)

REVISED CLASS FIELDS (/NCL) LAST RELOADED: Feb 2011

USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Feb 2011

CAplus now includes complete International Patent Classification (IPC) reclassification data for the fourth quarter of 2010.

CAS Information Use Policies apply and are available at:

<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> S L3

L4 21 L3

=> DIS L4 1 IBIB IABS

L4 ANSWER 1 OF 21 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2011:268331 CAPLUS Full-text

DOCUMENT NUMBER: 154:322544

TITLE: Organic electroluminescent devices having high efficiency by optimizing the triplet energy of luminescent hosts, dopants and electron-transporting material to allow singlet exciton generation by collision and fusion of two triplet excitons

INVENTOR(S): Nishimura, Kazuki; Kawamura, Yuichiro; Ogiwara, Toshinari; Kuma, Hitoshi; Fukuoka, Kenichi; Hosokawa, Chishio

PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 30pp., Cont.-in-part of U.S. Ser. No. 486,894.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|-------------|
| US 20110049483 | A1 | 20110303 | US 2010-816030 | 20100615 |
| US 20100314644 | A1 | 20101216 | US 2009-486894 | 20090618 |
| PRIORITY APPLN. INFO.: | | | JP 2009-141347 | A 20090612 |
| | | | US 2009-486894 | A2 20090618 |

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ABSTRACT:

Organic electroluminescent devices are described which comprise opposite anode and cathode, and a hole-transporting region, an emitting layer and an electron-transporting region in sequential order from the anode between the anode and the cathode, wherein the emitting layer includes a red emitting

portion, a green emitting portion, and a blue emitting portion; the blue emitting portion includes a host BH and a fluorescent dopant FBD; the triplet energy ET_{fbd} of the fluorescent dopant FBD is larger than the triplet energy ET_{bh} of the host BH; the green emitting portion includes a host GH and a phosphorescent dopant PGD; the electron-transporting region includes a common electron-transporting layer adjacent to the red emitting portion, the green emitting portion and the blue emitting portion; the common electron-transporting layer includes a material having a triplet energy ET_{el} larger than ET_{bh}; and the difference between the affinity of the host GH and the affinity of the material constituting the common electron-transporting layer is 0.4 eV or less. The organic electroluminescent devices have high efficiency by optimizing the triplet energy of luminescent hosts, dopants and electron-transporting material to allow singlet exciton generation by collision and fusion of two triplet excitons.

| | | |
|--|------------------|---------------|
| => file caplus | | |
| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
| FULL ESTIMATED COST | 3.72 | 203.80 |
| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
| CA SUBSCRIBER PRICE | -0.87 | -0.87 |

FILE 'CAPLUS' ENTERED AT 13:10:52 ON 28 MAR 2011
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2011 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 28 Mar 2011 VOL 154 ISS 14
FILE LAST UPDATED: 27 Mar 2011 (20110327/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Feb 2011
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Feb 2011

CAplus now includes complete International Patent Classification (IPC) reclassification data for the fourth quarter of 2010.

CAS Information Use Policies apply and are available at:

<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s 12
L5 24 L2

=> d 15 ibib abs hitstr 1-

YOU HAVE REQUESTED DATA FROM 24 ANSWERS - CONTINUE? Y/(N):y

L5 ANSWER 1 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 2011:268331 CAPLUS Full-text
DOCUMENT NUMBER: 154:322544
TITLE: Organic electroluminescent devices having high efficiency by optimizing the triplet energy of luminescent hosts, dopants and electron-transporting material to allow singlet exciton generation by collision and fusion of two triplet excitons
INVENTOR(S): Nishimura, Kazuki; Kawamura, Yuichiro; Ogiwara, Toshinari; Kuma, Hitoshi; Fukuoka, Kenichi; Hosokawa, Chishio
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
SOURCE: U.S. Pat. Appl. Publ., 30pp., Cont.-in-part of U.S. Ser. No. 486,894.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|-------------|
| US 20110049483 | A1 | 20110303 | US 2010-816030 | 20100615 |
| US 20100314644 | A1 | 20101216 | US 2009-486894 | 20090618 |
| PRIORITY APPLN. INFO.: | | | JP 2009-141347 | A 20090612 |
| | | | US 2009-486894 | A2 20090618 |

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB Organic electroluminescent devices are described which comprise opposite anode and cathode, and a hole-transporting region, an emitting layer and an electron-transporting region in sequential order from the anode between the anode and the cathode, wherein the emitting layer includes a red emitting portion, a green emitting portion, and a blue emitting portion; the blue emitting portion includes a host BH and a fluorescent dopant FBD; the triplet energy ET_{fbd} of the fluorescent dopant FBD is larger than the triplet energy ET_{bh} of the host BH; the green emitting portion includes a host GH and a phosphorescent dopant PGD; the electron-transporting region includes a common electron-transporting layer adjacent to the red emitting portion, the green emitting portion and the blue emitting portion; the common electron-transporting layer includes a material having a triplet energy ET_{el} larger than ET_{bh}; and the difference between the affinity of the host GH and the affinity of the material constituting the common electron-transporting layer is 0.4 eV or less. The organic electroluminescent devices have high efficiency by optimizing the triplet energy of luminescent hosts, dopants and electron-transporting material to allow singlet exciton generation by collision and fusion of two triplet excitons.

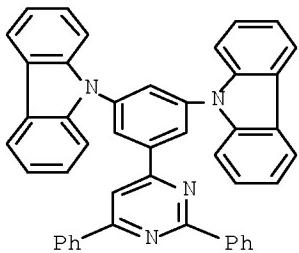
IT 607740-09-0

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(green-emitting layer host; OLED having high efficiency by optimizing the triplet energy of luminescent hosts, dopants and electron-transporting material to allow singlet exciton generation by collision and fusion of two triplet excitons)

RN 607740-09-0 CAPLUS

CN 9H-Carbazole, 9,9'-(5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA INDEX NAME)



L5 ANSWER 2 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 2011:142123 CAPLUS Full-text
 DOCUMENT NUMBER: 154:170452
 TITLE: Organic electroluminescent element
 INVENTOR(S): Ise, Toshihiro; Kitamura, Tetsu; Watanabe, Toru;
 Takeda, Akira; Tonosaki, Keiju
 PATENT ASSIGNEE(S): Fujifilm Corporation, Japan
 SOURCE: PCT Int. Appl., 128pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

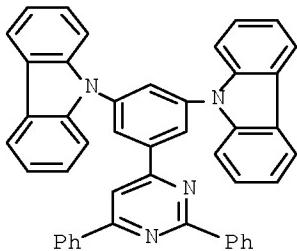
| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|------------|
| WO 2011013783 | A1 | 20110203 | WO 2010-JP62859 | 20100729 |
| W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW | | | | |
| RW: AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| PRIORITY APPLN. INFO.: | | | JP 2009-180223 | A 20090731 |
| | | | JP 2009-201155 | A 20090831 |
| | | | JP 2009-221663 | A 20090925 |

AB Disclosed is an organic electroluminescent element having excellent light emission characteristics and excellent durability, wherein chromaticity change is suppressed when the organic electroluminescent element is driven at high temps. The organic electroluminescent element comprises, on a substrate, a pair of electrodes and a light-emitting layer arranged between the electrodes, and was characterized in that the light-emitting layer contains a compound $(Cz)_p \cdot L \cdot (A)_q$ [Cz = (un)substituted arylcarbazolyl or carbazolylaryl; L = single bond, (un)substituted arylene, cycloalkylene or aromatic heterocycle; A = (un)substituted N-containing six-membered aromatic heterocycle; p, q = integer of 1-6] and a specific metal complex.

IT 607740-09-0

RL: TEM (Technical or engineered material use); USES (Uses)
 (organic electroluminescent element)

RN 607740-09-0 CAPLUS
CN 9H-Carbazole, 9,9'-[5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA
INDEX NAME)

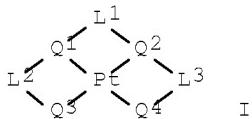


REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 3 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 2011:139719 CAPLUS Full-text
DOCUMENT NUMBER: 154:170449
TITLE: Organic electroluminescent element
INVENTOR(S): Kitamura, Tetsu; Watanabe, Toru; Hayashi, Masayuki; Ise, Toshihiro
PATENT ASSIGNEE(S): Fujifilm Corporation, Japan
SOURCE: PCT Int. Appl., 121pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|------------|
| WO 2011013830 | A1 | 20110203 | WO 2010-JP62961 | 20100730 |
| W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW | | | | |
| RW: AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| PRIORITY APPLN. INFO.: | | | JP 2009-180222 | A 20090731 |
| | | | JP 2009-201157 | A 20090831 |

GI



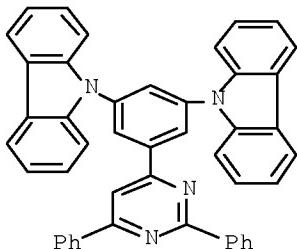
AB Disclosed is an organic electroluminescent element which is able to be driven at low voltage and exhibits high efficiency and excellent durability, while having small chromaticity change when driven at high temps. The organic electroluminescent element comprises, on a substrate, a pair of electrodes and at least one organic layer arranged between the electrodes and including a light-emitting layer, and was characterized in that one organic layer contains a compound $(Cz)_p L - (A)_q$ [Cz = (un)substituted arylcarbazolyl or carbazolylaryl; L = single bond, (un)substituted arylene, cycloalkylene or aromatic heterocycle; A = (un)substituted N-containing six-membered aromatic heterocycle; p, q = integer of 1 - 6.] and the light-emitting layer contains a phosphorescent material I [$Q1-4$ = ligand coordinated to Pt; $L1-3$ = single bond or divalent linking group].

IT 607740-09-0

RL: TEM (Technical or engineered material use); USES (Uses)
(organic electroluminescent element)

RN 607740-09-0 CAPLUS

CN 9H-Carbazole, 9,9'-[5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA INDEX NAME)



REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 4 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2010:1568869 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 154:52863

TITLE: Organic electroluminescent device

INVENTOR(S): Nishimura, Kazuki; Kawamura, Yuichiro; Ogiwara, Toshinari; Kuma, Hitoshi; Fukuoka, Kenichi; Hosokawa, Chishio

PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan

SOURCE: PCT Int. Appl., 59pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|----------|
| WO 2010143434 | A1 | 20101216 | WO 2010-JP3869 | 20100610 |
| W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG,
ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP,
KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA,
MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE,
PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV,
SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW
RW: AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR,
HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE,
SI, SK, SM, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
NE, SN, TD, TG, BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ,
TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |

PRIORITY APPLN. INFO.: JP 2009-141347 A 20090612

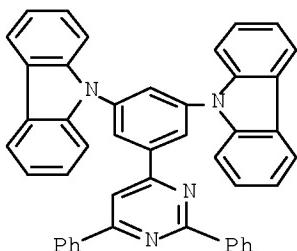
AB Disclosed is an organic electroluminescent device provided with a hole transport band, a light-emitting layer, and an electron transport band in said order from the anode side between an anode and cathode that face each other, wherein: the light-emitting layer is formed with a red light-emitting layer, a green light-emitting layer, and a blue light emitting layer; the blue light emitting layer comprises a host (BH) and a fluorescent dopant (FBD), and the triplet energy (ET fbd) of the fluorescent dopant (FBD) is greater than the triplet energy (ET bh) of the host (BH); the green light-emitting layer comprises a host (GH) and a phosphorescent dopant (PGD); a common electron transport layer that abuts the red light-emitting layer, the green light-emitting layer, and the blue light-emitting layer is positioned within the electron transport band, and the triplet energy (ET el) of the material that constitutes the electron transport layer is greater than the triplet energy (ET bh); and the affinity difference between the host (GH) and the material that constitutes the electron transport layer does not exceed 0.4 eV.

IT 607740-09-0

RL: TEM (Technical or engineered material use); USES (Uses)
(host material; organic electroluminescent device)

RN 607740-09-0 CAPLUS

CN 9H-Carbazole, 9,9'-[5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA
INDEX NAME)



REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 5 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 2010:1487979 CAPLUS Full-text
DOCUMENT NUMBER: 153:654650

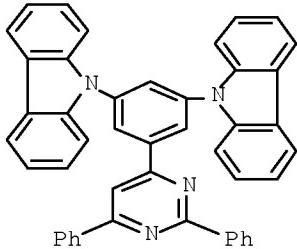
TITLE: Electron transport material for organic
 electroluminescent device
 INVENTOR(S): Kitamura, Akira; Watanabe, Toru; Ise, Toshihiro;
 Takizawa, Hiroo
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Tokkyo Koho, 104pp.
 CODEN: JTXXFF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|------------|
| JP 4590020 | B1 | 20101201 | JP 2010-107586 | 20100507 |
| WO 2011013681 | A1 | 20110203 | WO 2010-JP62647 | 20100727 |
| W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG,
ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, KE,
KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD,
ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG,
PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY,
TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW | | | | |
| RW: AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR,
HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE,
SI, SK, SM, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
NE, SN, TD, TG, BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ,
TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| PRIORITY APPLN. INFO.: | | | JP 2009-180226 | A 20090731 |
| | | | JP 2009-201158 | A 20090831 |
| | | | JP 2010-107586 | A 20100507 |

GI

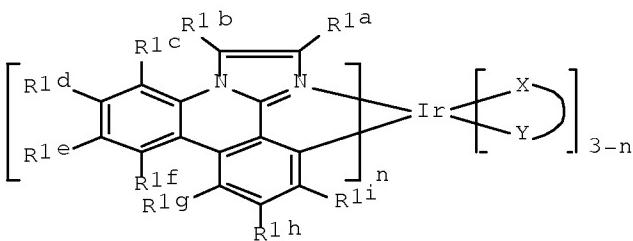
* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The invention relates to an electron transport material for an organic
 electroluminescent device, comprising the substance represented by I, wherein
 the halide impurities represented by II and III are contained $\leq 0.1\%$ [A1 and
 A2 = N, CH and CR [R = substituent]; L, L' and L'' = single bond, arylene,
 cycloalkylene and heterocyclic ring; R1-R5 = halo, alkyl, aryl, aromatic
 heterocyclic ring, adamantyl, cyano, silyl, and carbazolyl; n1-n3 = 0-4
 integer; n4 and n5 = 0-5 integer; p and q = 1-4 integer; X1 and X2 = halogen
 atom].
 IT 607740-09-0
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electron transport material for organic electroluminescent device)
 RN 607740-09-0 CAPLUS
 CN 9H-Carbazole, 9,9'-(5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA
 INDEX NAME)



L5 ANSWER 6 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 2010:993028 CAPLUS Full-text
 DOCUMENT NUMBER: 153:299201
 TITLE: Organic electroluminescent device
 INVENTOR(S): Ise, Toshihiro; Kitamura, Akira; Takada, Saki;
 Watanabe, Toru
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Tokkyo Koho, 61pp.
 CODEN: JTXXFF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|--------|------------|-----------------|------------|
| JP 4523992 | B1 | 20100811 | JP 2009-221664 | 20090925 |
| JP 2011049511 | A | 20110310 | | |
| WO 2011013859 | A1 | 20110203 | WO 2010-JP63434 | 20100730 |
| W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG,
ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, KE,
KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD,
ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG,
PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY,
TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW
RW: AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR,
HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE,
SI, SK, SM, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
NE, SN, TD, TG, BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ,
TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| PRIORITY APPLN. INFO.: | | | JP 2009-180225 | A 20090731 |
| | | | JP 2009-221664 | A 20090925 |
| OTHER SOURCE(S): | MARPAT | 153:299201 | | |
| GI | | | | |



I

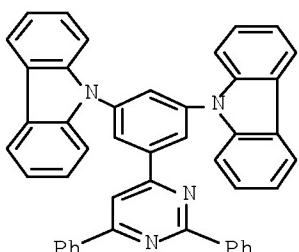
AB The invention refers to an organic electroluminescent device comprising an Ir complex I [R1a-1i = H, or hydrocarbon; X-Y = mono-ionic bidentate ligand; n = 3] in the luminescent layer, and a compound II [X4,5 = N or C, so that the ring containing X4 and X5 forms a pyridine or pyrimidine; :' = single bond, phenylene or biphenylene; R1-5 = F, tert-Bu, Ph, cyano, triphenylsilyl or carbazolyl; n1 - n5 = 0 or 1; p', q' = 1 or 2] an organic layer between the luminescent layer and the cathode.

IT 607740-09-0

RL: TEM (Technical or engineered material use); USES (Uses)
(organic electroluminescent device)

RN 607740-09-0 CAPLUS

CN 9H-Carbazole, 9,9'-[5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA
INDEX NAME)



L5 ANSWER 7 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 2010:672544 CAPLUS Full-text
 DOCUMENT NUMBER: 153:51139
 TITLE: Organic electroluminescence devices provided with
triphenylpyridine or triphenylpirimizin derivatives
 INVENTOR(S): Ise, Toshihiro; Kitamura, Akira; Watanabe, Toru;
Takeda, Rei; Tozaki, Keiki
 PATENT ASSIGNEE(S): Fujifilm Corporation, Japan
 SOURCE: Jpn. Tokkyo Koho, 57pp.
 CODEN: JTXXFF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------|-------|-------|-----------------|-------|
| ----- | ----- | ----- | ----- | ----- |

| | | | | |
|---|----|----------|-----------------|------------|
| JP 4474493 | B1 | 20100602 | JP 2009-221665 | 20090925 |
| JP 2011049512 | A | 20110310 | | |
| WO 2011013843 | A1 | 20110203 | WO 2010-JP63132 | 20100728 |
| W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG,
ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, KE,
KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD,
ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG,
PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY,
TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW
RW: AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR,
HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE,
SI, SK, SM, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
NE, SN, TD, TG, BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ,
TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| PRIORITY APPLN. INFO.: | | | JP 2009-180224 | A 20090731 |
| | | | JP 2009-221665 | A 20090925 |

OTHER SOURCE(S): MARPAT 153:51139
GI

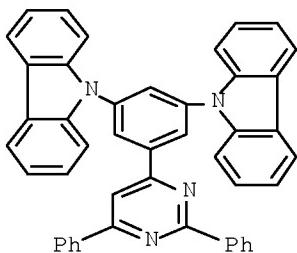
* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The electroluminescent layer bound between electrodes on a substrate in the title organic electroluminescent devices contains (1) triphenylpyridine or triphenylpirimizin derivs. [I: X_{4,5} = N or C to form pyridine or pyrimidine ring; L' = bond, phenylene; R₁₋₅ = F, Me, Ph, cyano, pyridyl, pyrimidyl, silyl, carbazolyl, tert-butyl; n_{1.approx.}n₅ = 0,1; p,q = 1,2] and (2) Ir bisphenylpyridine acetylacetone or picolinate derivs. [II: R_{3'} = alkyl; R_{4'.approx.}R_{6'} = H, alkyl, alkenyl, heteroalkyl, aryl, heteroaryl, R_{5'} and R_{6'} may be bonded to form aryl; R₅ = (nonarom.-substd.) aryl, (nonarom.-substd.) heteroaryl; nonarom. = alkyl, alkoxy, F, cyano, alkylamine, diarylamine; R₃, R₄, R₆ = H, alkyl; R = H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl; heteroalkyl = alkyl substd. on its ≥1 C with O, N, or S; (X-Y) = acetylacetone, picolinate; m=2; n=1]. The composition of the organic electroluminescent materials gives the EL devices excellent luminescent characteristics and stable coloring in high temperature operation.

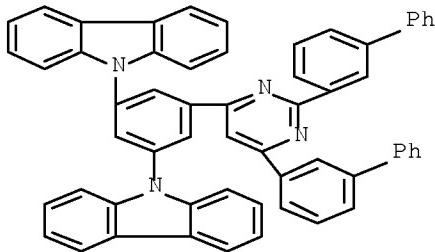
IT 607740-09-0 1228338-96-2 1228338-98-4
RL: PRPH (Prophetic); PRP (Properties)
(organic host material in electroluminescent layer; organic electroluminescence devices provided with triphenylpyridine or triphenylpirimizin derivs.)

RN 607740-09-0 CAPLUS

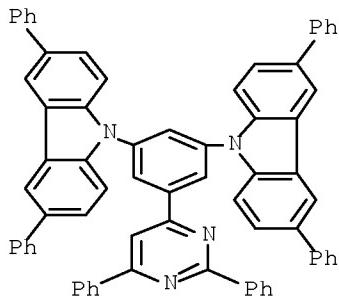
CN 9H-Carbazole, 9,9'-(5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA INDEX NAME)



RN 1228338-96-2 CAPLUS
CN INDEX NAME NOT YET ASSIGNED



RN 1228338-98-4 CAPLUS
CN INDEX NAME NOT YET ASSIGNED



L5 ANSWER 8 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 2009:1168797 CAPLUS Full-text
DOCUMENT NUMBER: 151:392278
TITLE: Organic electroluminescent device
INVENTOR(S): Kawamura, Yuichiro; Hosokawa, Chishio; Ikeda, Kiyoshi
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 125pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|--|----------|-----------------|------------|
| JP 2009218547 | A | 20090924 | JP 2008-178500 | 20080708 |
| PRIORITY APPLN. INFO.: | | | JP 2008-34970 | A 20080215 |
| OTHER SOURCE(S): | MARPAT 151:392278 | | | |
| AB | The invention relates to an organic electroluminescent device, comprising an interface layer, a hole transport layer, and an electroluminescent layer, | | | |

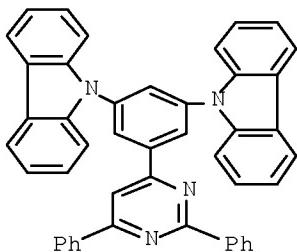
stacked in that order on an anode, wherein the hole transport layer comprises the compound containing an N-bonded aryl group, and the interface layer comprises the compound selected from naphthacene derivs. having 1-3 substituents at 5, 6, 11, or 12 positions, pentacene derivs. having 1-5 substituents at 5, 6, 7, 12, 13, or 14 positions, chrysene derivs., and benzoanthracene derivs.

IT 607740-09-0

RL: TEM (Technical or engineered material use); USES (Uses)
(organic electroluminescent device)

RN 607740-09-0 CAPLUS

CN 9H-Carbazole, 9,9'-[5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA
INDEX NAME)

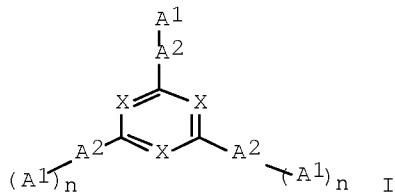


L5 ANSWER 9 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 2009:1047890 CAPLUS Full-text
 DOCUMENT NUMBER: 151:314637
 TITLE: Heteroatom-containing aromatic polymer and organic
electroluminescent device therewith
 INVENTOR(S): Toba, Masahiko; Kato, Tsuyoshi
 PATENT ASSIGNEE(S): Showa Denko K.K., Japan
 SOURCE: PCT Int. Appl., 88pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|----------|
| WO 2009104708 | A1 | 20090827 | WO 2009-JP52955 | 20090220 |
| W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,
CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES,
FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD,
ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH,
PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ,
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW | | | | |
| RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU,
IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI,
SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,
TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| KR 2010114545 | A | 20101025 | KR 2010-7021123 | 20090220 |
| EP 2246370 | A1 | 20101103 | EP 2009-713629 | 20090220 |

R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LI, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR, AL, BA, RS
 US 20100327738 A1 20101230 US 2010-918742 20100820
 PRIORITY APPLN. INFO.: JP 2008-41902 A 20080222
 WO 2009-JP52955 W 20090220

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
 GI



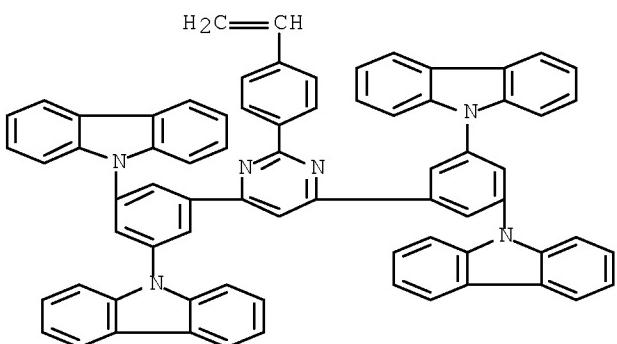
AB Disclosed is a polymer material which enables achievement of an organic EL device having low driving voltage and high durability when used in the organic EL device. The polymer contains a structural unit derived from a monomer represented by formula I, wherein A1 = a condensed polycyclic aromatic group optionally containing a heteroatom as a ring-constituting atom; the condensed polycyclic aromatic group is bonded to A2 at the meta position; A2 = a six-membered aromatic group optionally containing a heteroatom as a ring-constituting atom; at least one of A1 or A2 has a substituent having a polymerizable functional group; at least one of X = N; and n = 1 or 2.

IT 1184706-98-6DP, polymers 1184707-06-9DP, polymers
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

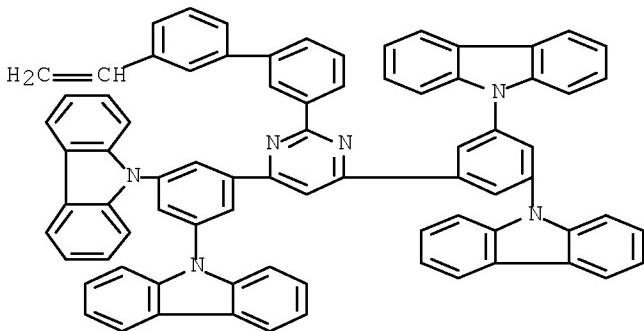
(heteroatom-containing aromatic polymer and organic electroluminescent device therewith)

RN 1184706-98-6 CAPLUS

CN 9H-Carbazole, 9,9',9'',9'''-[[2-(4-ethenylphenyl)-4,6-pyrimidinediyl]di-5,1,3-benzenetriyl]tetrakis- (CA INDEX NAME)



RN 1184707-06-9 CAPLUS
CN 9H-Carbazole, 9,9',9'',9'''-[[2-(3'-ethenyl[1,1'-biphenyl]-3-yl)-4,6-pyrimidinediyl]di-5,1,3-benzenetriyl]tetrakis- (CA INDEX NAME)



OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD
(2 CITINGS)
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 10 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 2009:828442 CAPLUS [Full-text](#)
DOCUMENT NUMBER: 151:135296
TITLE: Fluoranthene derivative-utilized organic
electroluminescent devices showing long service life
and low drive voltage
INVENTOR(S): Kawamura, Yuichiro; Saito, Hiroyuki; Mizuki, Yumiko
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 152pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|------------|
| JP 2009152529 | A | 20090709 | JP 2008-178499 | 20080708 |
| PRIORITY APPLN. INFO.: | | | JP 2007-307348 | A 20071128 |

OTHER SOURCE(S): MARPAT 151:135296

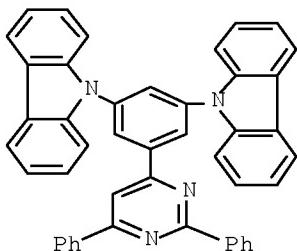
AB The title devices have interface-improving layers, hole-transporting layers, and emitting layers between anodes and cathodes, where the interface-improving layers comprise fluoranthene derivs. and may satisfy thickness of ≤20 nm. The fluoranthene derivs. show high planarity and thus showing excellent adhesion to anodes, and give improved stability to anode-side regions resulting in long life and low drive voltage.

IT 607740-09-0

RL: TEM (Technical or engineered material use); USES (Uses)
(emitting layers; fluoranthene derivative-utilized organic
electroluminescent
devices showing long service life and low drive voltage)

RN 607740-09-0 CAPLUS

CN 9H-Carbazole, 9,9'-[5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA INDEX NAME)



L5 ANSWER 11 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 2009:828397 CAPLUS Full-text
 DOCUMENT NUMBER: 151:136198
 TITLE: Organic electroluminescence device using
 indenoperylene derivative
 INVENTOR(S): Kawamura, Yuichiro; Saito, Hiroyuki; Ikeda, Kiyoshi
 PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 121pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|--------|------------|-----------------|------------|
| JP 2009152528 | A | 20090709 | JP 2008-178498 | 20080708 |
| PRIORITY APPLN. INFO.: | | | JP 2007-307347 | A 20071128 |
| OTHER SOURCE(S): | MARPAT | 151:136198 | | |
| GI | | | | |

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

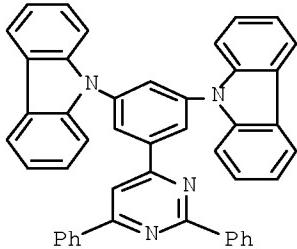
AB The invention relates to an organic electroluminescent device comprising an interface-improving layer, a hole transport layer, and electroluminescent layer, fabricated in that order between an anode and a cathode, wherein the interface-improving layer contains an indenoperylene represented by I or II [R1-20 = H, C6-50 aromatic residues, heteroarom. residues containing 5-50 atoms, and C1-50 alkyl].

IT 607740-09-0

RL: TEM (Technical or engineered material use); USES (Uses)
 (organic electroluminescence device using indenoperylene derivative)

RN 607740-09-0 CAPLUS

CN 9H-Carbazole, 9,9'-(5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA
 INDEX NAME)



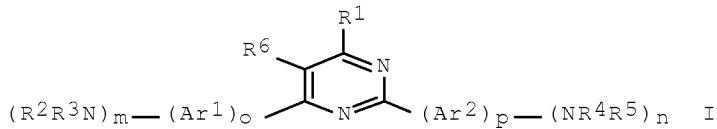
L5 ANSWER 12 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 2009:296481 CAPLUS Full-text
 DOCUMENT NUMBER: 150:362376
 TITLE: Material for organic photoelectric device, and organic photoelectric device including the same
 INVENTOR(S): Kim, Nam-Soo; Yu, Eun-Sun; Kim, Young-Hoon; Chae, Mi-Young
 PATENT ASSIGNEE(S): Cheil Industries Inc., S. Korea
 SOURCE: PCT Int. Appl., 53pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|------------------|------------|
| WO 2009031855 | A1 | 20090312 | WO 2008-KR5263 | 20080905 |
| W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW | | | | |
| RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| KR 2009024998 | A | 20090310 | KR 2007-90015 | 20070905 |
| CN 101784635 | A | 20100721 | CN 2008-80104151 | 20100224 |
| US 20100163857 | A1 | 20100701 | US 2010-659356 | 20100305 |
| PRIORITY APPLN. INFO.: | | | KR 2007-90015 | A 20070905 |
| | | | WO 2008-KR5263 | W 20080905 |

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 150:362376

GI

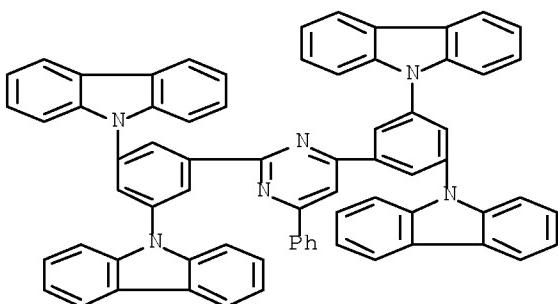


AB The present invention provides a phosphorescent light emitting material I [Ar_{1,2} = (un)substituted C₆-30 aryl or arylene; (un)substituted C₁-30 alkyl or alkylene; (un)substituted C₂-30 heteroaryl or heteroarylene; R_{1,6} = (un)substituted C₆-30 aryl, C₂-30 heteroaryl, C₁-30 alkyl; R_{2,5} = H, (un)substituted C₆-30 aryl or arylene, C₂-30 heteroaryl or heteroarylene, C₁-30 alkyl or alkylene; R_{2,3} and R_{4,5} may be fused together to form a ring; m,n = integers 0 - 3, m + n = 1 - 6, o, p = integers 0 - 2, o + p = 1 - 4] for an organic photoelec. device having thermal stability due to a glass transition temperature (Tg) of 120° or more and a thermal decomposition temperature (Td) of 400° or more, and being capable of realizing a high efficiency organic photoelec. device. The material may be used singularly or as a host material in combination with a dopant, and includes a sym. or asym. bipolar organic compound including both a hole transporting unit and an electron transporting unit. An organic photoelec. device including the material can also be provided. The material for an organic photoelec. device can provide an organic photoelec. device having high luminous efficiency at a low driving voltage.

IT 1131761-99-3P 1131762-01-0P 1131762-03-2P
 1131762-05-4P 1131762-07-6P 1131762-09-8P
 1131762-11-2P 1131762-13-4P 1131762-15-6P
 1131762-17-8P 1131762-19-0P 1131762-21-4P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (material for organic photoelec. device, and organic photoelec. device including the same)

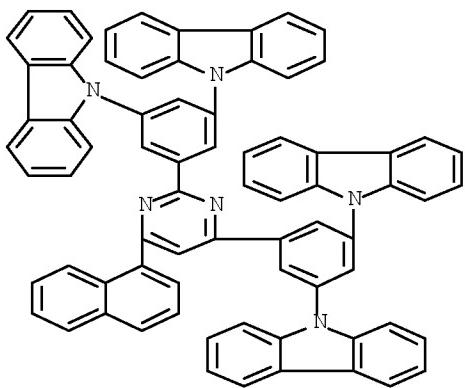
RN 1131761-99-3 CAPLUS

CN 9H-Carbazole, 9,9',9'',9'''-[(6-phenyl-2,4-pyrimidinediyl)di-5,1,3-benzenetriyl]tetrakis- (CA INDEX NAME)



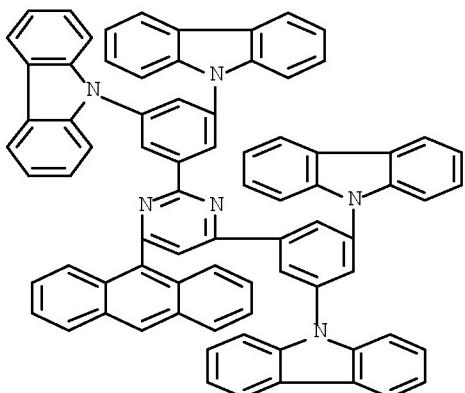
RN 1131762-01-0 CAPLUS

CN 9H-Carbazole, 9,9',9'',9'''-[[6-(1-naphthalenyl)-2,4-pyrimidinediyl]di-5,1,3-benzenetriyl]tetrakis- (CA INDEX NAME)



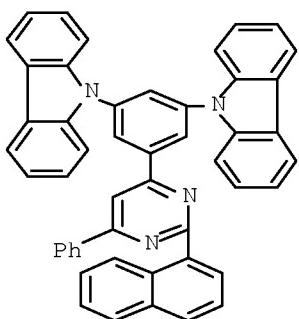
RN 1131762-03-2 CAPLUS

CN 9H-Carbazole, 9,9',9'',9'''-[[6-(9-anthracenyl)-2,4-pyrimidinediyl]di-5,1,3-benzenetriyl]tetrakis- (CA INDEX NAME)



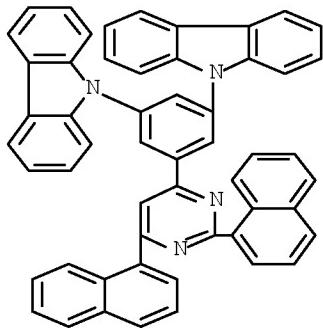
RN 1131762-05-4 CAPLUS

CN 9H-Carbazole, 9,9'-[5-[2-(1-naphthalenyl)-6-phenyl-4-pyrimidinyl]-1,3-phenylene]bis- (CA INDEX NAME)



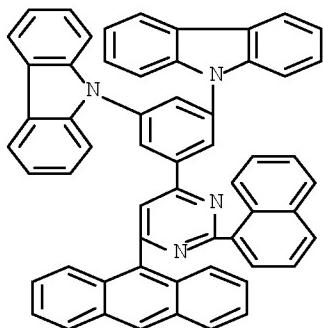
RN 1131762-07-6 CAPLUS

CN 9H-Carbazole, 9,9'-[5-(2,6-di-1-naphthalenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA INDEX NAME)



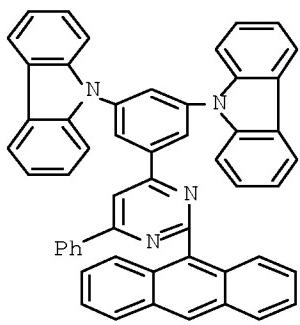
RN 1131762-09-8 CAPLUS

CN 9H-Carbazole, 9,9'-[5-[6-(9-anthracenyl)-2-(1-naphthalenyl)-4-pyrimidinyl]-1,3-phenylene]bis- (CA INDEX NAME)

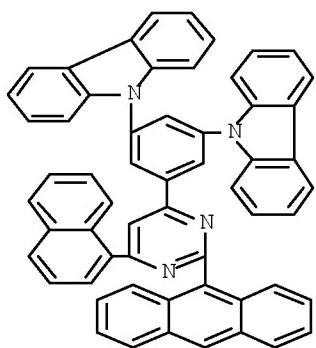


RN 1131762-11-2 CAPLUS

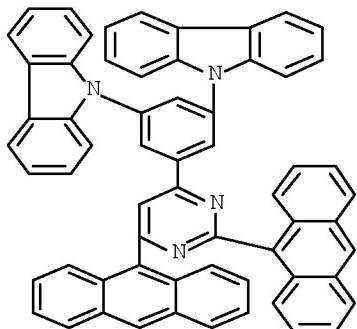
CN 9H-Carbazole, 9,9'-[5-[2-(9-anthracenyl)-6-phenyl-4-pyrimidinyl]-1,3-phenylene]bis- (CA INDEX NAME)



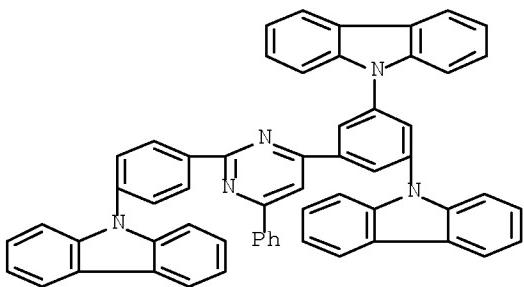
RN 1131762-13-4 CAPLUS
CN 9H-Carbazole, 9,9'-[5-[2-(9-anthracenyl)-6-(1-naphthalenyl)-4-pyrimidinyl]-1,3-phenylene]bis- (CA INDEX NAME)



RN 1131762-15-6 CAPLUS
CN 9H-Carbazole, 9,9'-[5-(2,6-di-9-anthracenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA INDEX NAME)

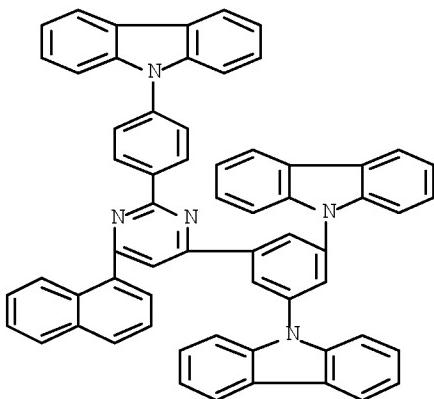


RN 1131762-17-8 CAPLUS
CN 9H-Carbazole, 9,9'-[5-[2-[4-(9H-carbazol-9-yl)phenyl]-6-phenyl-4-pyrimidinyl]-1,3-phenylene]bis- (CA INDEX NAME)



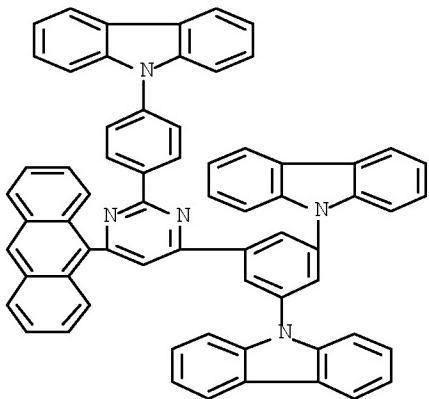
RN 1131762-19-0 CAPLUS

CN 9H-Carbazole, 9,9'-[5-[2-[4-(9H-carbazol-9-yl)phenyl]-6-(1-naphthalenyl)-4-pyrimidinyl]-1,3-phenylene]bis- (CA INDEX NAME)



RN 1131762-21-4 CAPLUS

CN 9H-Carbazole, 9,9'-[5-[6-(9-anthracenyl)-2-[4-(9H-carbazol-9-yl)phenyl]-4-pyrimidinyl]-1,3-phenylene]bis- (CA INDEX NAME)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 13 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 2008:1247342 CAPLUS Full-text
DOCUMENT NUMBER: 149:458120
TITLE: Organic electroluminescent device
INVENTOR(S): Nishimura, Kazuki; Iwakuma, Toshihiro; Fukuoka, Kenichi; Jinde, Yukitoshi; Hosokawa, Chishio
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
SOURCE: PCT Int. Appl., 131pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|------------|
| WO 2008123178 | A1 | 20081016 | WO 2008-JP55383 | 20080324 |
| W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,
CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES,
FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD,
ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH,
PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW | | | | |
| RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU,
IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK,
TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD,
TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW,
AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| EP 2133932 | A1 | 20091216 | EP 2008-722699 | 20080324 |
| R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU,
IE, IS, IT, LI, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI,
SK, TR | | | | |
| US 20100044689 | A1 | 20100225 | US 2009-532369 | 20090921 |
| PRIORITY APPLN. INFO.: | | | JP 2007-77611 | A 20070323 |
| | | | WO 2008-JP55383 | W 20080324 |

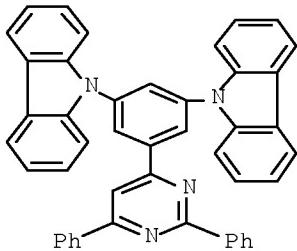
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The invention relates to a phosphorescent light-emitting layers which contain a host for phosphorescence and a phosphorescent dopant for phosphorescence, while a fluorescent light-emitting layer contains a host for fluorescence and a fluorescent dopant for fluorescence. An electron blocking layer blocks electrons injected in the host for fluorescent of the fluorescent light-emitting layer from being injected into the electron blocking layer side from the fluorescent light-emitting layer, while allowing holes being injected into the fluorescent light-emitting layer from the phosphorescent light-emitting layers. The triplet energy gap EgPD of the dopant for phosphorescence of the phosphorescent light-emitting layers, the triplet energy gap EgEB of the electron blocking layer and the triplet energy gap EgFH of the host for fluorescence of the fluorescent light-emitting layer satisfy the following relation. EgPD < EgEB ≤ EgFH (1).

IT 607740-09-0
RL: TEM (Technical or engineered material use); USES (Uses)
(organic electroluminescent device)

RN 607740-09-0 CAPLUS

CN 9H-Carbazole, 9,9'-(5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA INDEX NAME)



OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD
 (8 CITINGS)
 REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 14 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 2008:773582 CAPLUS Full-text
 DOCUMENT NUMBER: 149:91175
 TITLE: Organic electroluminescent devices including no optical defect and high luminance and efficiency
 INVENTOR(S): Iwakuma, Toshihiro; Watanabe, Masami; Okuda, Fumio;
 Nishimura, Kazuki; Hosokawa, Chishio
 PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 22pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

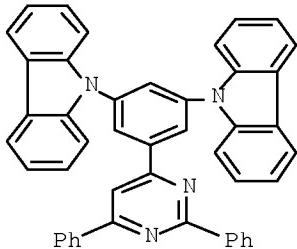
| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|--------|-----------|-----------------|----------|
| JP 2008147424 | A | 20080626 | JP 2006-332946 | 20061211 |
| PRIORITY APPLN. INFO.: | | | JP 2006-332946 | 20061211 |
| OTHER SOURCE(S): | MARPAT | 149:91175 | | |
| GI | | | | |

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The devices contain, in the layers adjacent to emitting layers, metal complexes I-IV [M = metal; R₁ = H, alk(en)yl, alkynyl, (hetero)aryl, etc.; R₂, R₃, R₈, R₁₁, R₁₂ = H, alkyl, aralkyl, CN, CF₃, halo, etc.; J = R, CN, CF₃, CO₂R, etc. (R = H, halo, alk(en)yl, etc.); XY = chiral ligand, auxiliary ligand; e = 0-4; m, n ≥ 1; m + n = the maximum coordination number for M]. The layers adjacent to the emitting layers may be hole-, electron-, and/or exciton-blocking layers. The devices show long service life.

IT 607740-09-0
 RL: TEM (Technical or engineered material use); USES (Uses)
 (emitting layers, host; organic electroluminescent devices including no optical defect and high luminance and efficiency)
 RN 607740-09-0 CAPLUS
 CN 9H-Carbazole, 9,9'-(5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA

INDEX NAME)



L5 ANSWER 15 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 2008:733490 CAPLUS Full-text
DOCUMENT NUMBER: 149:68051
TITLE: Organic electroluminescent device
INVENTOR(S): Iwakuma, Toshihiro; Watanabe, Masami; Okuda, Fumio;
Nishimura, Kazuki; Hosokawa, Chishio
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
SOURCE: PCT Int. Appl., 42pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|------------|
| WO 2008072539 | A1 | 20080619 | WO 2007-JP73563 | 20071206 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA,
CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, KE, KG, KM,
KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG,
MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT,
RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR,
TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF,
BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW,
GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,
BY, KG, KZ, MD, RU, TJ, TM | | | | |
| JP 2008147426 | A | 20080626 | JP 2006-332952 | 20061211 |
| PRIORITY APPLN. INFO.: | | | JP 2006-332952 | A 20061211 |

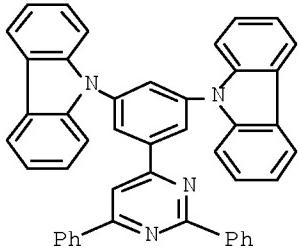
OTHER SOURCE(S): MARPAT 149:68051

AB An organic electroluminescent device has at least an organic thin film layer having a light-emitting layer, which is sandwiched between the cathode and the anode. A layer in contact with the light-emitting layer contains a metallic complex compound having a specific structure and is preferably at least a single layer selected from a hole block layer, an electron block layer, and an exciton block layer. This provides the organic electroluminescent device having no pixel defects and having a high light-emitting efficiency even at a low voltage.

IT 607740-09-0

RL: TEM (Technical or engineered material use); USES (Uses)

(organic electroluminescent devices containing organic light-emitting layers)
RN 607740-09-0 CAPLUS
CN 9H-Carbazole, 9,9'-[5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA INDEX NAME)



REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 16 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 2008:156813 CAPLUS [Full-text](#)
DOCUMENT NUMBER: 148:225226
TITLE: Organic electroluminescent device
INVENTOR(S): Iwakuma, Toshihiro; Arakane, Takashi; Arai, Hiromasa; Nagashima, Hideaki
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
SOURCE: PCT Int. Appl., 71 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|------------------|----------|
| WO 2008015949 | A1 | 20080207 | WO 2007-JP64631 | 20070726 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW | | | | |
| RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| EP 2053672 | A1 | 20090429 | EP 2007-791331 | 20070726 |
| R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, RS | | | | |
| KR 2009051163 | A | 20090521 | KR 2009-7002207 | 20090203 |
| CN 101501880 | A | 20090805 | CN 2007-80028996 | 20090203 |
| US 20090243473 | A1 | 20091001 | US 2009-376236 | 20090306 |

PRIORITY APPLN. INFO.:

JP 2006-213761 A 20060804

WO 2007-JP64631 W 20070726

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

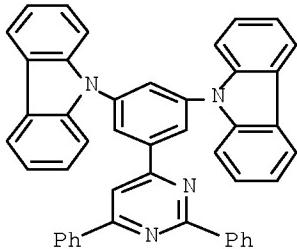
AB The invention relates to an organic electroluminescent device comprising a cathode, an anode, and an organic layer, which is formed between the cathode and the anode and includes at least a light-emitting layer and an electron transport layer. An electron transport material constituting the electron transport layer and having the slowest electron mobility has an electron mobility of $2.0 + 10^{-5}$ cm²/Vs or more at an elec. field intensity of 0.4 MV/cm to 0.5 MV/cm. When the ratio of the electron mobility to the hole mobility of a host material constituting the light-emitting layer is denoted by ΔEM and the ratio of the electron mobility to the hole mobility of the electron transport material constituting the electron transport layer and having the slowest electron mobility is denoted by ΔET , the organic electroluminescence device satisfies the following relationships: $\Delta ET > 1$, $0.3 \leq \Delta EM \leq 10$, and $\Delta ET > \Delta EM$.

IT 607740-09-0

RL: TEM (Technical or engineered material use); USES (Uses)
(organic electroluminescent device)

RN 607740-09-0 CAPLUS

CN 9H-Carbazole, 9,9'-[5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA
INDEX NAME)



OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD
(9 CITINGS)

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 17 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2007:971415 CAPLUS Full-text

DOCUMENT NUMBER: 147:311076

TITLE: Organic electroluminescent device

INVENTOR(S): Iwakuma, Toshihiro; Matsuura, Masahide; Nagashima, Hideaki; Ikeda, Shuji; Nakamura, Hiroaki; Kusumoto, Tadashi

PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 20pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.

KIND

DATE

APPLICATION NO.

DATE

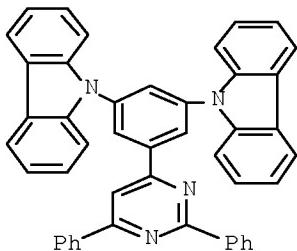
JP 2007220721 A 20070830 JP 2006-36479 20060214
PRIORITY APPLN. INFO.: JP 2006-36479 20060214
AB The invention relates to an organic electroluminescent device, especially relates to a phosphorescent organic electroluminescent device, comprising a 1st layer, a 2nd layer, an active layer containing a ortho-metallated complex doped in a host material, and a cathode, stacked in that order on an anode, wherein the relationships represented by $TD + 10 \text{ eV} \leq Th_1$, $TD + 0.10 \text{ eV} \leq Th_2$, and $TD + 0.10 \text{ eV} \leq TH$ are satisfied, wherein the TD, Th₁, Th₂ and TH are the lowest excited triplet state energy of ortho-metallated complex, the 1st layer material, the 2d layer material and the active layer host, resp., in order to realize the high quantum efficiency device.

IT 697740-09-0

RL: TEM (Technical or engineered material use); USES (Uses) (organic electroluminescent device)

RN 607740-09-0 CAPLUS

CN 9H-Carbazole, 9,9'-(5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene)bis- (CA INDEX NAME)



OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD
(2 CITINGS)

L5 ANSWER 18 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 2007:283495 CAPLUS Full-text
DOCUMENT NUMBER: 146:337907
TITLE: Preparation of azafluoranthene derivatives as materials for organic electroluminescent derives
INVENTOR(S): Iwakuma, Toshihiro
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
SOURCE: PCT Int. Appl., 61pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|------------------|----------|
| WO 2007029806 | A1 | 20070315 | WO 2006-JP317845 | 20060908 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP,
KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN,
MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS,
RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ,
UA, UG, US, UZ, VC, VN, ZA, ZM, ZW | | | | |

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

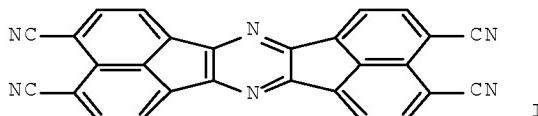
US 20080206597 A1 20080828 US 2007-931374 20071031
US 7662487 B2 20100216

PRIORITY APPLN. INFO.: JP 2005-262288 A 20050909
WO 2006-JP317845 A1 20060908

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 146:337907

GI



I

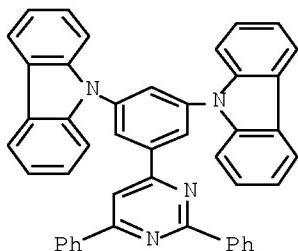
AB The invention aims at providing a novel azaarom. compound having an azafluoranthene skeleton which is useful as the constituent of organic EL devices and at realizing a long-life, high-efficiency, and practical organic EL device by using the compound in at least one of the organic compound layers. Twelve general structures having an azafluoranthene skeleton were claimed. For example, 5,6-dibromo-1,2-acenaphthylenedione was reacted with formamide, followed by the addition of CuCN in DMF to give I. Some of the title compds. were tested to have good EL efficiency.

IT 607740-09-0

RL: TEM (Technical or engineered material use); USES (Uses)
(preparation of azafluoranthene derivs. as materials for organic electroluminescent devices)

RN 607740-09-0 CAPLUS

CN 9H-Carbazole, 9,9'-[5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA INDEX NAME)



OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD
(5 CITINGS)

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

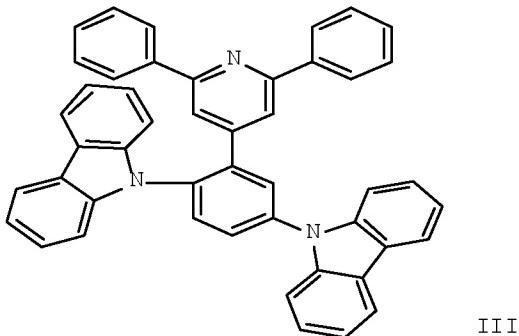
L5 ANSWER 19 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 2006:632732 CAPLUS Full-text
 DOCUMENT NUMBER: 145:103546
 TITLE: Preparation of biscarbazole derivatives as
 charge-transporting materials, and organic
 electroluminescent elements
 INVENTOR(S): Yabe, Masayoshi; Sato, Hideki
 PATENT ASSIGNEE(S): Pioneer Corporation, Japan; Mitsubishi Chemical
 Corporation
 SOURCE: PCT Int. Appl., 137 pp.
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|------------------|------------|
| WO 2006067976 | A1 | 20060629 | WO 2005-JP22635 | 20051209 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ,
LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ,
NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG,
SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN,
YU, ZA, ZM, ZW | | | | |
| RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,
CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
KG, KZ, MD, RU, TJ, TM | | | | |
| JP 2006199679 | A | 20060803 | JP 2005-355790 | 20051209 |
| EP 1829871 | A1 | 20070905 | EP 2005-814748 | 20051209 |
| R: DE | | | | |
| CN 101087776 | A | 20071212 | CN 2005-80044718 | 20051209 |
| KR 2007090952 | A | 20070906 | KR 2007-7014364 | 20070622 |
| US 20080145699 | A1 | 20080619 | US 2007-722760 | 20070625 |
| US 20090191426 | A2 | 20090730 | | |
| PRIORITY APPLN. INFO.: | | | JP 2004-373981 | A 20041224 |
| | | | WO 2005-JP22635 | W 20051209 |

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

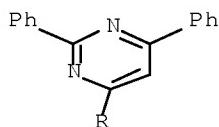
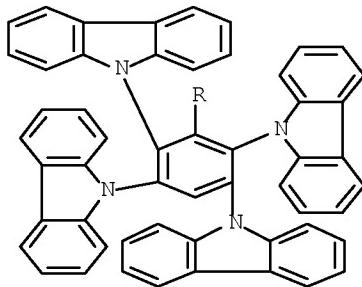
OTHER SOURCE(S): CASREACT 145:103546; MARPAT 145:103546

GI



AB Organic compds. represented by the following formula [I; Cz1, Cz2 = carbazolyl; Z = a direct bond or any connecting group which enables the nitrogen atom of the carbazole ring in Cz1 to be conjugated with the nitrogen atom of the carbazole ring in Cz2; Q = a direct bond connected to G in the following formula Q1; ring B1 = a 6-membered aromatic heterocycle having n nitrogen atom(s) as a heteroatom, provided that n is an integer of 1-3; G is connected to Q, it is a direct bond or any connecting group which each is connected to Q; G is bonded to any of the carbon atoms located in the ortho and para positions to a nitrogen atom of the ring B1; when G is not connected to Q, it is an aromatic hydrocarbon group; m = an integer of 3-5] are prepared. These compds. combines excellent hole-transporting properties with excellent electron-transporting properties and has excellent long-term resistance to elec. oxidation/reduction and a high triplet excitation level. A charge-transporting material and an organic electroluminescent element which comprise or employ the organic compound I are also disclosed. Thus, aldol condensation of 2,5-difluorobenzaldehyde with acetophenone in a mixture of concentrated H₂SO₄ and THF at 35° for 7 h gave 1-phenyl-3-(2,5-difluorophenyl)-2-propen-1-one which underwent cyclocondensation with 1-phenacylpyridinium bromide and ammonium acetate in a mixture of AcOH ad DMF under refluxing for 6 h to give 4-(2,5-difluorophenyl)-2,6-diphenylpyridine (II). Carbazole was treated with NaH in DMF at 80° for 60 min and condensed with II under refluxing for 3 h to give 4-[2,5-bis(carbazol-9-yl)phenyl]-2,6-diphenylpyridine (III). An electroluminescent device with a luminescent layer comprising III as a main component (host material) showed excellent life property (working life of 1.00 at 2.500 cd/m²).

IT 895147-10-1P
 RL: DEV (Device component use); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (preparation of biscarbazole derivs. as charge-transporting materials, and organic electroluminescent elements)
RN 895147-10-1 CAPLUS
CN 9H-Carbazole, 9,9',9'',9'''-[3-(2,6-diphenyl-4-pyrimidinyl)-1,2,4,5-benzenetetrail]tetrakis- (CA INDEX NAME)



OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD
(6 CITINGS)

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 20 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 2005:984262 CAPLUS Full-text
DOCUMENT NUMBER: 143:275345
TITLE: Organic electroluminescent device
INVENTOR(S): Iwakuma, Toshihiro; Yasuda, Hiroya; Ikeda, Kiyoshi;
Yamamichi, Keiko; Arakane, Takashi; Hosokawa, Chishio
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
SOURCE: PCT Int. Appl., 59 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|-----------------|----------|
| WO 2005084083 | A1 | 20050909 | WO 2005-JP3384 | 20050301 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,
NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM,
SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,
AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT,
RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,
MR, NE, SN, TD, TG | | | | |
| EP 1722603 | A1 | 20061115 | EP 2005-719701 | 20050301 |

| | | | | |
|------------------------|----|----------|------------------|------------|
| R: BE, DE, FR, GB, NL | | | | |
| CN 1926925 | A | 20070307 | CN 2005-80006370 | 20050301 |
| US 20070172698 | A1 | 20070726 | US 2006-588773 | 20060808 |
| KR 2007004678 | A | 20070109 | KR 2006-7017888 | 20060901 |
| PRIORITY APPLN. INFO.: | | | JP 2004-57048 | A 20040302 |
| | | | WO 2005-JP3384 | W 20050301 |

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 143:275345

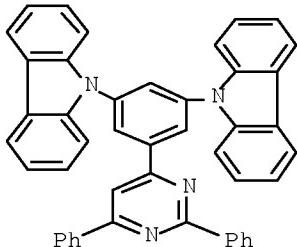
AB Disclosed is an organic electroluminescent device where an organic thin film layer is interposed between a cathode and an anode which organic thin film layer is composed of one or more layers including a phosphorescent light-emitting layer containing at least a host material and a phosphorescent organic metal complex. The total of the mass concns. of halogen elements, namely bromine, iodine and chlorine contained as impurities in the host material constituting the light-emitting layer is not more than 50 ppm. This organic electroluminescent device has high luminance, high luminous efficiency and long life.

IT 607740-09-0P

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(organic electroluminescent device)

RN 607740-09-0 CAPLUS

CN 9H-Carbazole, 9,9'-[5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA INDEX NAME)



| | | |
|----------------------|---|--|
| OS.CITING REF COUNT: | 5 | THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD
(14 CITINGS) |
| REFERENCE COUNT: | 4 | THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT |

| | | |
|-------------------------|---|---------------------------|
| L5 ANSWER 21 OF 24 | CAPLUS | COPYRIGHT 2011 ACS on STN |
| ACCESSION NUMBER: | 2005:823992 | CAPLUS <u>Full-text</u> |
| DOCUMENT NUMBER: | 143:219260 | |
| TITLE: | Organic electroluminescent device | |
| INVENTOR(S): | Matsuura, Masahide; Iwakuma, Toshihiro; Yamamichi, Keiko; Hosokawa, Chishio | |
| PATENT ASSIGNEE(S): | Idemitsu Kosan Co., Ltd., Japan | |
| SOURCE: | PCT Int. Appl., 52 pp. | |
| DOCUMENT TYPE: | Patent | |
| LANGUAGE: | Japanese | |
| FAMILY ACC. NUM. COUNT: | 1 | |
| PATENT INFORMATION: | | |

PATENT NO.

KIND DATE

APPLICATION NO.

DATE

| | | | | |
|---|----|----------|------------------|------------|
| WO 2005076669 | A1 | 20050818 | WO 2005-JP1799 | 20050208 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| EP 1718121 | A1 | 20061102 | EP 2005-709851 | 20050208 |
| R: BE, DE, FR, GB, NL | | | | |
| CN 1918947 | A | 20070221 | CN 2005-80004332 | 20050208 |
| KR 2006114001 | A | 20061103 | KR 2006-7015981 | 20060808 |
| US 20070257600 | A1 | 20071108 | US 2007-588549 | 20070413 |
| PRIORITY APPLN. INFO.: | | | JP 2004-32542 | A 20040209 |
| | | | WO 2005-JP1799 | W 20050208 |

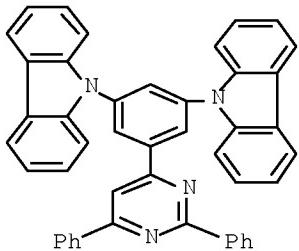
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB Disclosed is an organic EL device having a multilayer structure wherein at least a light-emitting layer and an electron transport layer are arranged between cathodes and an anode is characterized in that the host material constituting the light-emitting layer has a triplet energy gap (EgT) of not less than 2.52 eV and not more than 3.7 eV, an electron-transporting material constituting the electron transport layer is different from the host material and has a hole transporting ability, and the light-emitting layer further contains a metal complex compound having phosphorescence and containing a heavy metal.

IT 607740-09-0
RL: DEV (Device component use); USES (Uses)
(organic electroluminescent device)

RN 607740-09-0 CAPLUS

CN 9H-Carbazole, 9,9'-(5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA INDEX NAME)



OS.CITING REF COUNT: 9 THERE ARE 9 CAPLUS RECORDS THAT CITE THIS RECORD
(19 CITINGS)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

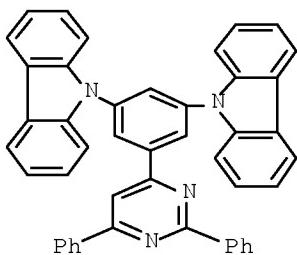
L5 ANSWER 22 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 2004:634243 CAPLUS Full-text
DOCUMENT NUMBER: 141:182077

TITLE: Organic electroluminescence device showing high emission efficiency and extended service life for full color display
 INVENTOR(S): Arakane, Takashi; Iwakuma, Toshihiro; Hosokawa, Chishio
 PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
 SOURCE: PCT Int. Appl., 55 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|------------------|-------------|
| WO 2004066685 | A1 | 20040805 | WO 2004-JP236 | 20040115 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ | | | | |
| EP 1589789 | A1 | 20051026 | EP 2004-702427 | 20040115 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK | | | | |
| CN 1762182 | A | 20060419 | CN 2004-80007699 | 20040115 |
| CN 100493286 | C | 20090527 | | |
| JP 4580342 | B2 | 20101110 | JP 2005-508033 | 20040115 |
| US 20060180806 | A1 | 20060817 | US 2005-542629 | 20050718 |
| US 20090072732 | A1 | 20090319 | US 2008-289590 | 20081030 |
| PRIORITY APPLN. INFO.: | | | JP 2003-16505 | A 20030124 |
| | | | WO 2004-JP236 | W 20040115 |
| | | | US 2005-542629 | B1 20050718 |

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

- AB An organic electroluminescence device has at least a hole-transport layer and a light-emitting layer made of a phosphorescent light-emitting material and a host material between a cathode and an anode. The triplet energy of the hole-transport material of the hole-transport layer is 2.52-3.70 eV. The hole mobility is 10⁻⁶ cm²/Vs at an elec. field strength of 0.1-0.6 MV/cm. Thus an organic electroluminescence device using phosphorescence emission, exhibiting a high emission efficiency, and having a long life is provided.
 IT 607740-09-0
 RL: DEV (Device component use); USES (Uses)
 (host material; organic electroluminescence device showing high emission efficiency and extended service life)
 RN 607740-09-0 CAPLUS
 CN 9H-Carbazole, 9,9'-(5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA INDEX NAME)



OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD
 (6 CITINGS)
 REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

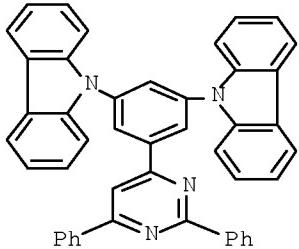
L5 ANSWER 23 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 2004:334022 CAPLUS Full-text
 DOCUMENT NUMBER: 140:365380
 TITLE: Organic electroluminescent device
 INVENTOR(S): Arakane, Takashi; Iwakuma, Toshihiro; Hosokawa,
 Chishio
 PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
 SOURCE: PCT Int. Appl., 81 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|------------------|-------------|
| WO 2004034751 | A1 | 20040422 | WO 2003-JP12598 | 20031001 |
| W: CN, JP, KR, US | | | | |
| RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
IT, LU, MC, NL, PT, RO, SE, SI, SK, TR | | | | |
| EP 1551206 | A1 | 20050706 | EP 2003-751304 | 20031001 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK | | | | |
| CN 1703937 | A | 20051130 | CN 2003-80101284 | 20031001 |
| CN 1703937 | B | 20101124 | | |
| KR 1016164 | B1 | 20110217 | KR 2005-7006025 | 20031001 |
| US 20060257684 | A1 | 20061116 | US 2005-529238 | 20050325 |
| JP 2010161410 | A | 20100722 | JP 2010-86846 | 20100405 |
| PRIORITY APPLN. INFO.: | | | JP 2002-296024 | A 20021009 |
| | | | JP 2004-542820 | A3 20031001 |
| | | | WO 2003-JP12598 | W 20031001 |

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB An organic electroluminescent device having, between a cathode and an anode, a light-emitting layer which is made of at least a phosphorescent material and a host material, has an electron injection layer arranged between the light-emitting layer and the cathode and having a junction with the light-emitting layer. The light-emitting layer has electron transport properties and the ionization potential of the host material is 5.9 eV or less. The energy gap of an electron transport material in the electron injection layer is smaller than that of the host material in the light-emitting layer, or the triplet energy of the electron transport material in the electron injection layer is smaller than that of the host material in the light-emitting layer. The organic electroluminescent device uses light emission of phosphorescence and has high luminous efficiency.

IT 607740-09-0
 RL: DEV (Device component use); USES (Uses)
 (electroluminescent layer host; organic electroluminescent device with
 phosphorescent guest in electroluminescent layer)
 RN 607740-09-0 CAPLUS
 CN 9H-Carbazole, 9,9'-(5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA
 INDEX NAME)



OS.CITING REF COUNT: 9 THERE ARE 9 CAPLUS RECORDS THAT CITE THIS RECORD
 (27 CITINGS)
 REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 24 OF 24 CAPLUS COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 2003:777920 CAPLUS [Full-text](#)
 DOCUMENT NUMBER: 139:299015
 TITLE: Carbazole derivative for organic electroluminescent devices and organic electroluminescent devices
 INVENTOR(S): Iwakuma, Toshihiro; Yamamoto, Hiroshi; Hironaka, Yoshio; Ikeda, Hidetsugu; Hosokawa, Chishio; Tomita, Seiji; Arakane, Takashi
 PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
 SOURCE: PCT Int. Appl., 68 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|-------------|
| WO 2003080760 | A1 | 20031002 | WO 2003-JP3329 | 20030319 |
| W: CN, IN, JP, KR
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR | | | | |
| EP 1489155 | A1 | 20041222 | EP 2003-712758 | 20030319 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, CY, TR, BG, CZ, EE, HU, SK | | | | |
| CN 1701111 | A | 20051123 | CN 2003-806689 | 20030319 |
| CN 100366703 | C | 20080206 | | |
| JP 4316387 | B2 | 20090819 | JP 2003-578493 | 20030319 |
| KR 948700 | B1 | 20100322 | KR 2004-7014947 | 20030319 |
| EP 2169028 | A2 | 20100331 | EP 2008-156371 | 20030319 |
| EP 2169028 | A3 | 20110209 | | |
| R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LI, LU, MC, NL, PT, SE, SI, SK, TR | | | | |
| TW 306890 | B | 20090301 | TW 2003-106356 | 20030321 |
| US 20040086745 | A1 | 20040506 | US 2003-393988 | 20030324 |
| IN 2004CN02074 | A | 20060303 | IN 2004-CN2074 | 20040917 |
| US 20050249976 | A1 | 20051110 | US 2005-150342 | 20050613 |
| JP 2009088538 | A | 20090423 | JP 2008-286590 | 20081107 |
| PRIORITY APPLN. INFO.: | | | JP 2002-81234 | A 20020322 |
| | | | JP 2002-299810 | A 20021015 |
| | | | EP 2003-712758 | A3 20030319 |

JP 2003-578493 A3 20030319
WO 2003-JP3329 W 20030319
US 2003-393988 B1 20030324

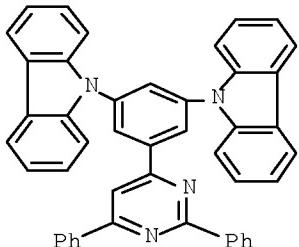
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The invention refers to a material for blue electroluminescent devices having the structure (Cz)_nA or Cz(A)_n [Cz = (un)substituted arylcarbazoyl or carbazoyl alkylene; A = MpLqM'r; M,M' = (un)substituted C₂-40 heteroarom. rings; L = single bond, (un)substituted C₆-30 aryl or arylene, C₅-30 cycloalkylene, photorefractive C₂-30 heteroarom.; p,r = 0 - 2; q = 1 - 2; p + r > 1].

IT 607740-09-0P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(carbazole derivative for organic electroluminescent devices and organic electroluminescent devices)

RN 607740-09-0 CAPLUS

CN 9H-Carbazole, 9,9'-[5-(2,6-diphenyl-4-pyrimidinyl)-1,3-phenylene]bis- (CA INDEX NAME)



OS.CITING REF COUNT: 9 THERE ARE 9 CAPLUS RECORDS THAT CITE THIS RECORD
(13 CITINGS)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> end
ALL L# QUERIES AND ANSWER SETS ARE DELETED AT LOGOFF
LOGOFF? (Y)/N/HOLD:y

(FILE 'HOME' ENTERED AT 13:08:38 ON 28 MAR 2011)

FILE 'REGISTRY' ENTERED AT 13:09:50 ON 28 MAR 2011
L1 STRUCTURE uploaded
L2 18 SEA FILE=REGISTRY SSS FUL L1
D L2 18

FILE 'REGISTRY' ENTERED AT 13:10:20 ON 28 MAR 2011
SET TERMSET E#
DEL SEL Y
SEL L2 18 RN
L3 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON 607740-09-0/RN
SET TERMSET LOGIN

FILE 'CAPLUS' ENTERED AT 13:10:25 ON 28 MAR 2011
L4 21 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L3

```
SET LINE 250
SET DETAIL OFF
SET NOTICE OFF DISPLAY
SET LINE LOGIN
SET DETAIL LOGIN
DIS L4 1 IBIB IABS
SET NOTICE LOGIN DISPLAY
```

FILE 'CAPLUS' ENTERED AT 13:10:52 ON 28 MAR 2011
L5 24 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L2
D L5 IBIB ABS HITSTR 1-

| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|--|------------------|---------------|
| FULL ESTIMATED COST | 163.84 | 367.64 |
| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
| CA SUBSCRIBER PRICE | -20.88 | -21.75 |

STN INTERNATIONAL LOGOFF AT 13:34:35 ON 28 MAR 2011